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RAILCAR COORDINATION AMONG COOPERATIVES



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PREFACE

This is a followup study to one conducted in 1972 by Farmer Cooperative Service that was designed to determine transportation methods and programs for coordinating intercooperative transportation of grain and bulk farm supplies among 14 midwestern cooperatives. That study¹ recommended that the cooperatives set up a system to jointly own and operate their own towboats and barges. The study also recommended that the cooperatives consider pooling their railcar equipment. The study recommendation on barge operations has been implemented and several midwestern cooperatives are now operating their own barge line.

This study is designed to evaluate the cooperatives' railcar operations to determine what is needed to improve service and reduce costs. Specific objectives of the study are: (1) To obtain a profile of present private railcar operations of farmer cooperatives; and (2) to explore possibilities and methods for improving railcar utilization and reducing costs through coordination or pooling.

Data were obtained for 1975 from 18 regional and interregional farm supply and grain marketing cooperatives, showing numbers and types of railcars owned and leased, costs and periods of use, and joint use of cars between cooperatives and other firms. The 18 cooperatives studied own or lease the bulk of the covered hopper and tank cars operated by all farmer cooperatives.

Need for this study arises from the following: (1) Rapid increase in the number and types of railcars operated by cooperatives; (2) poor utilization of equipment resulting from cooperative or railroad operating practices and from unpredictability of demand for cars; and (3) expressed interest by cooperatives in exploring possibilities for pooling or coordinating use of their railcars to improve service and reduce costs.

¹ Charles E. Reed, Robert J. Byrne, and Richard M. Ackley. Coordinating Transportation to Reduce Costs—Possibilities for 14 Regional Cooperatives. FCS Service Report 132. 1973.

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SUMMARY AND RECOMMENDATIONS

Based on findings of this study we recommend that interested farmer cooperatives consider setting up a system to jointly pool, manage, and coordinate the use of their owned and leased railcars. While such a system should be designed for the mutual benefit of members of the pool, its services should also be made available to other cooperatives, particularly during periods of excess or short car supply.

Twelve of the 18 cooperatives studied chose the following organizational structure to accomplish the above: a separate cooperative set up to pool, manage, and coordinate a portion of each participating cooperative's railcar fleet, with a core fleet to be retained by each cooperative. While this offers a workable means to initiate a pool car program, we believe experience will demonstrate that cooperatives should pool all their railcars to gain maximum benefits and efficiency.

To support the recommendation for setting up a cooperative railcar pool we cite the following study findings:

- The large and increasing number of cars—5,757 covered hoppers and 3,011 tank cars—owned or leased by the 18 cooperatives studied. Less than 4 percent are owned.

- Difficulties cooperatives face in keeping cars productively employed—caused largely by excessive car turnaround time and slack periods of car use.

- The large operating deficit (difference between lease cost and mileage allowance received from railroads) of nearly \$5.4 million or \$987 a car on leased covered hoppers and more than \$3.4 million or \$1,140 a car on leased tank cars in 1975.

- Indications that smaller fleet operators, in particular, don't have the time or manpower to properly manage car operations to improve car turnaround time and find alternative uses for cars during slack use periods.

- Idle cars as reported by 6 cooperatives where their hopper cars were idle 15 percent of their total car-months or 4,650 car-months during 1975. And, 7 cooperatives reporting their tank cars were idle 6 percent of the time or 1,199 car-months during the year.

- The need for a system to shift cars among cooperatives to match car supply with car needs as demonstrated by the increasing necessity for subleasing and back-to-back or split leasing of cars between cooperatives and between cooperatives and other firms.

—Lack of backhauls—only five cooperatives had backhauls in 1975 and these were few.

—Need for a coordinated pool car program stressed by all 18 cooperatives studied. Better utilization of cars was the main reason for supporting such a program.

As a further indication of potential for a cooperative car pooling program we also cite the following trends in private car characteristics, use, and demand:

—The greater variety and volume of more sophisticated products handled by cooperatives, which require specialized railcar equipment.

—Increasing need and demand by smaller local cooperatives for their own railcars, generally for short periods each year. Drawing necessary railcars from a pool would be more feasible than long-term leases with predictable idle car time.

—Further processing of agricultural commodities and manufacturing of farm production supplies into forms requiring transportation in tank cars, a type of equipment that must be furnished by the shipper.

—Increasing integration of agricultural product marketing or farm supply procurement by cooperatives with both origin and destination handling facilities owned or controlled by the cooperatives, thus facilitating faster turnaround of their railcars.

—Successful car management programs of some cooperatives with large fleets of cars that have the necessary resources and time to negotiate better service arrangements with railroads, such as: On-time pickup and delivery of shippers' cars, reduced time and route circuitry on return of empty cars, and new or amended agreements with railroads to permit shippers' cars to serve additional origin or destination facilities.

A coordinating program to pool railcars would also present the following opportunities for cooperatives to improve car utilization and efficiency:

—Possibilities for developing backhauls or two-way movements of commodities that could result in reduced freight rates and improved energy use.

—Excess car mileage earnings could be retained by car pool members by shifting excess mileage earnings of some cars to railcars that are operating at a deficit.

—More advantageous lease rates and conditions might be negotiated with car leasing companies because of increased bargaining strength of a larger fleet operator.

RAILCAR COORDINATION AMONG COOPERATIVES

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Grain and fertilizers are the big volume bulk items handled by cooperatives. Nearly two-thirds of the grain sent to export points by regional and interregional cooperatives moves by rail. Rails also move about two-thirds of the fertilizers sold at wholesale by the regional farm supply cooperatives.

During the past few years, the amount of fertilizer handled by farmer cooperatives has increased substantially. Similarly, the amount of grain moved to ports by cooperatives has increased not only in volume but also an increasingly larger share is being exported.

As shown in table 1, the percentage of grain handled by major regional and interregional grain marketing cooperatives moving to ports increased from 41 percent in 1972 to 58 percent in 1975. The annual volume of grain moving to ports also increased more than two-thirds in the 4-year period—from 541 million bushels to 915 million bushels. The dramatic increase in the amount of grain moving to export points by cooperatives in recent years also holds true for the grain marketing industry as a whole. During the same period, fertilizer sold at wholesale by major regional and interregional farm supply cooperatives increased from an estimated 8.3 million tons in 1972 to 10.6 million tons in 1975.

Covered hopper cars haul over four-fifths of the grain moved by railroads. An even higher proportion of the dry fertilizers moving by rail is hauled in covered hopper cars.

The increased demand for covered hopper cars in recent years has been brought about by larger volume movements, and greater efficiency of covered hoppers in handling of dry bulk commodities. This increased demand has led to periods of car shortages and in turn to private operation of hopper cars by shippers to help alleviate these shortages.

As shown in table 2, the number of railroad-owned covered hopper cars has increased from 142,000 cars to 158,000 cars or 11 percent from 1972 to 1975. However, in the same period, privately owned covered hopper cars have increased dramatically from 44,000 cars to 70,000 cars or more than 61 percent. In 1972, 24 percent of the Nation's covered hopper cars were privately owned. In 1975, this had increased to 31 percent.

Ownership and leasing of many types of tank and hopper cars by farmer cooperatives have been spurred by:

- Increased exports of grain with attendant needs for large capacity, fast loading and unloading railcars capable of fast turnaround time.

- Lower rail rate structures predicated on the use of shippers' cars.

- An increasingly wide array of more sophisticated products requiring specialized railcars, particularly tank cars that shippers must furnish.

- Increased demands of farmers and the market for better rail service and more adequate car supply.

Table 1—Estimated amount of grain moved to ports and fertilizer sold at wholesale by major regional and interregional cooperatives, 1972-75

Year	Grain moved to ports		Fertilizer sold at wholesale
	Amount	% of all grain handled	
	<i>Million bu.</i>	<i>Percent</i>	<i>Million tons</i>
1972	541	41	8.3
1973	937	55	9.7
1974	860	54	9.8
1975	915	58	10.6

Table 2—Covered hopper cars in service, railroad and privately owned, 1972-75

Year	Total	Railroad owned	Privately owned	
			Number	As percent of total
	<i>1,000 cars</i>	<i>1,000 cars</i>	<i>1,000 cars</i>	<i>Percent</i>
1972	186	142	44	24
1973	205	151	54	26
1974	219	155	64	29
1975	228	158	70	31

Source: Association of American Railroads.

RAILCARS OPERATED

The 18 cooperatives studied owned or leased 8,768 railcars on December 31, 1975 (table 3). Most of the cars, 8,466, were leased. About two-thirds were covered hoppers and the remainder tank cars.

Six cooperatives had fleets of 500 or more cars. Eight had fleets of 100 to 499 cars and four had fewer than 100 cars.

Car Capacities

As shown in table 4, almost half of the 5,757 covered hopper cars operated by the 15 cooperatives who reported operating such equipment are 4,740- and 4,750-cubic-foot-capacity cars. The next most popular sizes were the 4,427- and 4,700-cubic-foot-capacity cars.

Nearly two-thirds of the covered hopper cars reported were lined. Lined cars are preferred for hauling fertilizers and fertilizer ingredients. Most of the unlined cars are limited to hauling grain.

Thirteen of the 18 cooperatives studied reported they operated tank cars. Almost two-thirds of their tank cars are used for hauling various kinds of fertilizer (table 5). The largest number of tank cars are of 30,000 gallons' capacity or more followed by the small 10,000-gallon-capacity and under cars.

The 13 cooperatives reported their cars are used for hauling 14 different commodities. Most of the commodities require tank car equipment specially designed or equipped to handle a limited number of commodities. This could limit shifting of tank cars among cooperatives to some extent.

Table 3—Number and type of railcars owned or leased by 18 cooperatives, December 31, 1975

Type	Leased	Owned	Total
<i>Number</i>			
Covered hoppers	5,465	292	5,757
Tank cars	3,001	10	3,011
Total	8,466	302	8,768

Table 4—Capacities and types of covered hopper cars operated by 15 cooperatives, December 31, 1975

Capacity (cu ft)	Type			Total
	Lined	Unlined	Not reported	
<i>Number</i>				
4,400 and under	281	111	47	439
4,427 and 4,700	1,782	407	155	2,344
4,740 and 4,750	1,585	865	420	2,870
5,250 and above	— — —	10	94	104
Total	3,648	1,393	716	5,757

Table 5—Capacities and types of tank cars operated by 13 cooperatives, December 31, 1975

Capacity (gals.)	Type							Total
	Anhy- drous ammonia	Nitrogen fertilizer solution	Vege- table oil	Liquified petro- leum gas	Asphalt	Phos- phoric acid	All other	
<i>Number</i>								
10,000 & under	— — —	688	66	— — —	110	— — —	16	860
10,001 to 19,999	113	70	— — —	5	— — —	284	38	510
20,000 to 29,999	— — —	— — —	326	10	176	— — —	84	596
30,000 & above	765	— — —	— — —	280	— — —	— — —	— — —	1,045
Total	878	738	392	295	286	284	138	3,011

Car Use

We asked the cooperatives to list the points between which their cars were principally used in 1975. We also asked for the average turnaround time for their tank and covered hopper cars between their five most important origin-destination pairs measured in terms of car miles by type of car.

Five cooperatives gave us the necessary information for 17 principal origin-destination pairs served by their tank cars. Nine cooperatives provided information on 35 principal origin-destination pairs they serve with their covered hopper cars.

The bulk (14) of the 17 origin-destination pairs reported by five cooperatives showed their tank cars averaged 100 miles or less a day during 1975 in service between the 14 points. The largest number (8) of the 17 origin-destination pairs involved round trips of 1,001 to 1,500 miles.

For covered hopper cars nearly two-thirds (22) of the 35 origin-destination pairs reported by the 9 cooperatives showed their covered hopper cars averaged between 51 and 150 miles a day. While the largest number (13) of the 35 origin-destination pairs involved round trips of 1,001 to 1,500 miles, a great number—16 of the remaining 22 origin-destination pairs—were for round trips greater than 1,500 miles.

Mileage data were plotted for the 17 origin-destination pairs on tank cars (fig. 1), and for the 35 origin-destination pairs on covered hopper cars (fig. 2). An analysis by simple linear regression (represented by the estimated regression line in figs. 1 and 2) shows a significant relationship between miles per day and round-trip miles. Eighty-five percent of the variation in miles per day for tank cars and 70 percent for covered hopper cars is explained by round-trip miles.

This indicates the desirability, from the utilization standpoint, of keeping tank and covered hopper cars employed in long-distance rather than short-haul movements.

According to the Association of American Railroads, average freight car miles per day for Class I railroads in 1975 was 53.6 miles per serviceable car on line. Taking a simple average of the 17 origin-destination pairs reported by the cooperatives for tank cars and the 35 origin-destination pairs for covered hopper cars, the average miles per day for tank cars was 94 and for covered hopper cars 119.

Lease Terms

Most railcar leases run from 1 to 10 years in length. Time remaining on the leases of the cooperatives' railcars as of December 31, 1975, is shown in table 6.

Almost three-fourths of the covered hopper cars had 4 years or more left on their lease terms, while about 60 percent of the tank cars were under lease for the same period.

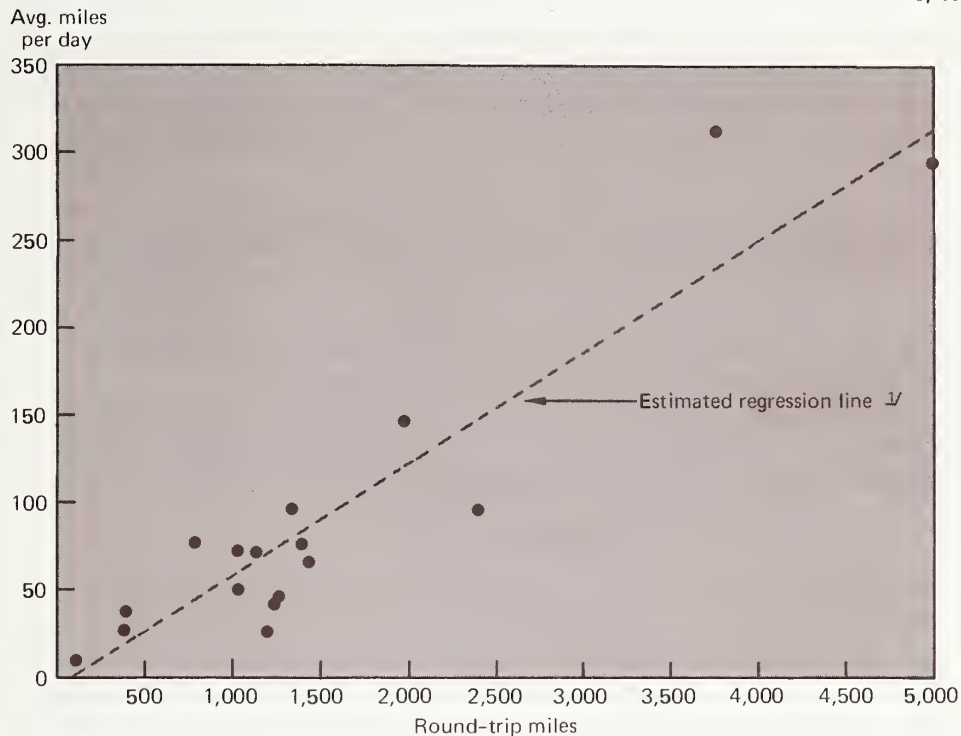
Car leasing companies charge shippers (lessees) a set amount each month for each car they lease. The shipper, in turn, is paid a mileage allowance by the railroad. For covered hopper cars, the mileage allowance in 1975 was generally 13 cents a loaded mile per car. Recently, mileage allowances have been increased to as much as 18 cents a loaded mile for newer equipment. Mileage allowances for tank cars vary according to cost and age of car.

Table 6—Time remaining on railcar leases, 18 cooperatives, December 31, 1975

Time remaining on lease	Number of cars		
	Covered hopper	Tank	Total
Less than 1 year	55	126	181
1 to 2 years	570	284	854
2 to 4 years	809	739	1,548
4 to 6 years	1,790	833	2,623
6 to 10 years	1,228	368	1,596
10 years & over	983	498	1,481
Other ¹	30	153	183
Total	5,465	3,001	8,466

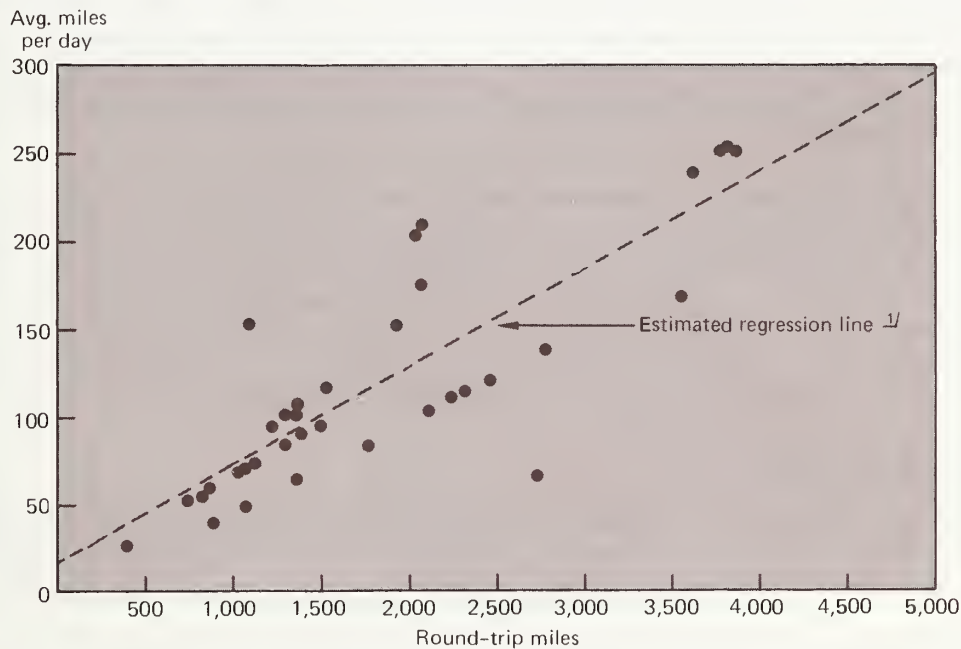
¹ Includes month-to-month leases, open leases, and cars leased for a designated period each year.

FIGURE 1 — — ROUND-TRIP MILES AND AVERAGE MILES A DAY FOR THEIR OWN TANK CARS REPORTED BY 5 COOPERATIVES FOR 17 PRINCIPAL ORIGIN-DESTINATION PAIRS, 1975



$1/2$ Miles per day = $-6.17 + .065 \times \text{round-trip miles}$ with an r^2 of .85 and a T-statistic of 9.2

FIGURE 2 — — ROUND-TRIP MILES AND AVERAGE MILES A DAY FOR THEIR OWN COVERED HOPPER CARS REPORTED BY 9 COOPERATIVES FOR 35 PRINCIPAL ORIGIN-DESTINATION PAIRS, 1975



$1/2$ Miles per day = $16.5 + .056 \times \text{round-trip miles}$ with an r^2 of .70 and a T-statistic of 8.7

CAR UTILIZATION

Regardless of whether railcars are owned or leased, there is a sizable cost associated with their operation. Keeping the cars productively employed becomes a serious problem for many car operators. Principal causes of poor utilization of cooperatives' cars are excessive turnaround time and slack periods when the cooperative has little or no use for the equipment.

Excessive car turnaround time may be caused by such factors as poor railroad service, shipper delays in loading or unloading, weather conditions, wrecks, equipment breakdowns, embargoes, or any combination of these. Generally speaking, reduction of turnaround time appears to be a difficult area in which to bring about a dramatic improvement in car utilization as it requires a high degree of coordination and cooperation among the several parties involved in a railcar movement.

Given these limitations in improving car turnaround time cooperatives are presently trying to improve car utilization, principally by back-to-back leasing or short-term sub-leasing with other shippers to match-off equipment surpluses and deficits.

Operating Costs

As stated earlier in this report, only 302 of the 8,768 railcars operated by the 18 cooperatives were owned. The remainder were leased.

Because the majority of the cars were leased, we obtained cost data on only those cars. To determine the cost of operating leased cars we figured the difference between the amount the cooperatives paid car-leasing companies and the mileage allowance received by cooperatives from railroads for use of the equipment.²

This difference gives an indication of the extent to which the cars are kept productively employed and the degree of utilization. The railroad mileage allowance on hopper cars, for example, is generally paid only on the loaded movement. Thus, a regular long-distance movement with fast turnaround time is preferable to short or irregular movements where turnaround time may be slow and the car is moving loaded a small percentage of the time. Also, if the car is idle it obviously is not generating any revenue from the mileage allowance.

While the following cost figures are useful in showing the degree to which the cooperatives' railcars are kept productively employed, other economic benefits are obtained that may more than offset any loss shown when comparing lease costs with the mileage allowance received from railroads. These other benefits cooperatives gained by having their own cars include: (1) They made sales they possibly would have lost because of railcar shortages; (2) they took advantage of lower multiple-car and unit-train rates; and (3) they utilized rail service that requires use of shipper equipment.

Covered Hopper Cars

Detailed information was obtained from the 15 cooperatives that operated hopper cars on the amount they paid car leasing companies and the amount they received from railroads in mileage allowance. As shown in table 7, the cooperatives had an operating

² Charges assessed by lessors for leased cars generally include car maintenance and repair except when loss or damage is due to negligence of lessee.

deficit of nearly \$5.4 million or \$987 a car on the 5,465 leased covered hopper cars they operated in 1975.

The deficit ranged from a breakeven operation by one cooperative to a deficit of more than \$1,700 a car for another. The 6 cooperatives that operated fleets of less than 100 cars had the highest average deficit—\$1,242 a car.

Table 7—Leased covered hopper car earning deficits,¹ 15 cooperatives, 1975

Number of cars	Cooperatives reporting	Car earning deficit	
		Total	Per car
	<i>Number</i>	<i>Dollars</i>	<i>Dollars</i>
Less than 100	6	459,714	1,242
100 to 499	4	354,515	565
500 to 999	3	2,061,895	916
1,000 or more	2	2,515,917	1,135
Total	15	5,392,041	987

¹ Represents excess of leasing cost over mileage allowance received from railroads.

Tank Cars

Information was obtained from the 13 cooperatives that leased tank cars on the amount they paid car leasing companies and the amount they received from railroads in mileage allowance. The cooperatives had an operating deficit of more than \$3.4 million or \$1,140 a car on the 3,001 tank cars they leased in 1975 (table 8).

Deficits ranged from a low of \$293 a car for one cooperative to \$2,283 a car for another. As with the covered hopper car operators, the six cooperatives that operated fleets of less than 100 tank cars had the highest average deficit—\$1,443 a car.

Table 8—Leased tank car earning deficits,¹ 13 cooperatives, 1975

Number of cars	Cooperatives reporting	Car earning deficit	
		Total	Per car
	<i>Number</i>	<i>Dollars</i>	<i>Dollars</i>
Less than 100	6	240,989	1,443
100 to 499	5	946,223	917
500 to 1,000	2	2,234,436	1,246
Total	13	3,421,648	1,140

¹ Represents excess of leasing cost over mileage allowance received from railroads.

Reasons for Operating Deficits

Thus for the total 8,466 leased covered hopper and tank cars operated by the 18 cooperatives in 1975, operating deficits amounted to more than \$8.8 million or \$1,042 per car.

The magnitude of this deficit suggests one or more of the following:

- A. Car lease rates are too high.
- B. Railroad mileage allowances for shipper-cars are too low.
- C. Low car utilization that stems from:
 - 1. Poor car management by the cooperatives.
 - 2. Inadequate service in handling shippers' cars by the railroads.
 - 3. The inherent nature of the cooperatives' business. (Seasonal demands for bulk fertilizers and petroleum products and seasonality in grain movements, to name two.)

We doubt that any one of these factors is totally responsible for the poor operating cost record of the cooperatives' railcar fleet. Rather we suspect most of these may contribute in varying degrees to the record.

Lease Rates

In this study we did not make the analysis necessary to determine if railcar lease rates are too high. However, we suspect that if they were greatly out of line there would be a greater tendency on the part of cooperatives to own rather than lease cars. In addition to large capital requirements, the fear of technological obsolescence of equipment and the threat of possible changes in railroad rules regarding handling of shippers' cars contribute to shippers' preference for leasing over purchase of railcars even if ownership would show a limited cost advantage over leasing.

Mileage Allowances

The recent increase in allowances for some covered hopper cars indicates a partial recognition by the railroads that mileage allowances are too low. Several of the cooperatives studied stated that they felt rail mileage allowances on both covered hopper and tank cars were too low. We have not, in this study, analyzed the level of mileage allowances paid by the railroads to determine to what extent this has contributed to the operating deficit of the cooperatives' railcar fleet.

Low Utilization

The final factor is low car utilization. The three subfactors—railcar management, inadequate rail service, and the inherent nature of the cooperatives' business doubtless contributed significantly to the railcar operating deficit of the cooperatives.

Railcar Management—Railcar management is essential if shippers expect to maximize their car fleet performance and utilization. The extent to which the car operations are truly managed varied widely among the cooperatives studied, depending generally on size of fleet and the importance placed on reducing turnaround time.

Most of the cooperatives that operate sizable car fleets, generally 100 cars or more, use Telex to keep track of their cars when they are in use. Telex is a computer terminal that is tied into the computer system of the major railroads. This system permits a fast check on car movements and location at a given time.

During periods of peak or low car use, cooperatives are increasingly turning to other shippers to either obtain additional cars or to place their cars where they can be productively employed. These arrangements require time, work, and constant attention if advantageous programs are to be worked out.

Smaller fleet operators generally don't have the manpower or time to seek out

advantageous arrangements for car use. Consequently cars quite often remain idle for long periods of time or are put into local service where there is little generation of mileage income. This same situation occurs for large fleet operators also, particularly during periods of excess car supply in the industry as a whole.

Inadequate Rail Service—The service provided by railcarriers in pulling shippers' cars causes operational problems, according to the cooperatives. The principal complaint dealt with slow turnaround time. Delays in railroad yards and terminals as well as in pickup and delivery of cars by carriers result in excessive idle car time and consequent reduction in mileage income. This problem is particularly acute on single and 5- to 10-car units. Unit train movements of 25, 50, or more cars generally have better turnaround times, as the unit is kept intact and is ordinarily not subject to yard, terminal, and other delays experienced by units made up of fewer cars.

A similar complaint on rail service voiced by the cooperatives dealt with unpredictability of car pickup and delivery times. Instances were cited of regular movements of cooperatives' cars in unit lots between two points with turnaround times varying from 7 to 15 days. This time variation is particularly critical on export movements where cooperatives attempt to time shipments of grain from country elevator origins for arrival at ports at ship loading times.

An attendant problem concerns unpredictability of arrival of locomotives to pull shippers' cars after loading. A grain exporting cooperative official says it is not uncommon for the cooperative to work night shifts at the originating elevator to load its cars for a scheduled pickup by the railroad in the morning. However, the power may not show up until late in the day or the following day. The resulting delay in arrival of trains at the port has cost the cooperative thousands of dollars in ship demurrage payments.

Inherent Nature of Cooperatives' Business—The big volume commodities that cooperatives move in their own cars are grain and fertilizers. The cooperative, the farmers' own business firm, molds its service to meet farmers' needs. With increased on-farm grain storage it has become more difficult to predict when grain will move. Because of this unpredictability, the cooperative's car fleet logs considerable idle time waiting for car demand to develop when grain begins to move.

Also, local grain cooperatives who are members of regional cooperatives feel the regional's car fleet should be made available for local hauls between country elevators and terminals. This results in poor car turnaround time and high operating deficits.

Similarly, on fertilizer movements, the farmer expects his cooperative to have his fertilizer in position for delivery when he needs it. Depending on weather and field conditions, this can result in fertilizer cars sitting on plant or storage tracks in the farming area for weeks or even months waiting for demand to develop.

Based on data obtained from two cooperatives who are most successful in keeping their cars productively employed and operating deficits at a minimum we note the following operating characteristics common to both:

- Both operate covered hopper cars only and keep them employed almost exclusively in grain export handling.

- Both own and operate the grain originating elevators and the port elevators.

- Their grain originating elevators are large, modern facilities designed for fast loading. Port elevators are designed for fast receiving.

- Cars are used only in unit-train lots and are employed year-round.

Seasonality of Use

We asked the cooperatives to estimate what percent of their tank and covered hopper cars were idle, by months, during 1975. Six of the 15 cooperatives that operated covered hopper cars reported periods during which the cars were idle. Seven of the 13 cooperatives that operated tank cars reported periods during which their cars were idle.

The remainder of the cooperatives utilized various methods to keep their cars employed in order to avoid idle time. These methods included: back-to-back leasing and subleasing of cars with railroads and other shippers; using cars (particularly tankers) for storage; and, shifting covered hopper cars to the less productive local movement of grain from country elevators to terminals.

Covered Hopper Cars

Three of the six cooperatives who reported idle time used their covered hopper cars primarily to haul grain. The other three cooperatives hauled primarily fertilizer in their cars.

As shown in table 9, almost 90 percent of the idle car time reported by the three grain cooperatives occurred in the 4-month period from March through June. The three fertilizer shippers reported over half of their idle car time occurred during this same 4-month period. However, a third of the idle cars reported by fertilizer shippers occurred from July through December—the same period grain shippers reported no idle cars.

The six cooperatives had 4,650 idle car-months during 1975 which accounted for 15 percent of their total car-months for the year. For the fertilizer shippers, idle car-months amounted to 18 percent of their total car-months and for grain shippers, idle car-months amounted to 12 percent.

Table 9—Covered hopper cars reported idle, by 6 cooperatives, 1975

Month	Idle cars					
	Grain		Fertilizer		Total	
	Number	Percent of total cars ¹	Number	Percent of total cars ²	Number	Percent of total cars
Jan.	100	8	281	22	381	15
Feb.	100	8	94	7	194	8
Mar.	200	16	160	12	360	14
Apr.	409	32	114	9	523	20
May	466	37	611	47	1,077	42
June	519	41	642	49	1,161	45
Jul.	0	0	305	23	305	12
Aug.	0	0	33	3	33	1
Sep.	0	0	280	22	280	11
Oct.	0	0	11	1	11	(³)
Nov.	0	0	182	14	182	7
Dec.	0	0	143	11	143	6
Total car-months	1,794	12	2,856	18	4,650	15

¹ Based on total of 1,272 cars operated by 3 grain cooperatives.

² Based on total of 1,303 cars operated by 3 fertilizer cooperatives.

³ Less than 1/2 of 1 percent.

Tank Cars

Information obtained from the seven cooperatives who reported idle tank cars shows idle time amounted to 1,199 car-months or 6 percent of their total car-months for the year (table 10). June and July accounted for nearly half of the year's idle car-months.

Table 10—Tank cars reported idle by 7 cooperatives, 1975

Idle cars	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Total car-months
Number	48	48	58	58	62	284	275	80	76	76	85	49	1,199
Percent of total cars ¹	3	3	4	4	4	17	17	5	5	5	5	3	6

¹ Based on total of 1,637 cars operated by the 7 cooperatives.

Joint Use of Equipment

To minimize idle car time, cooperatives have turned increasingly to various joint arrangements with railroads and other shippers to shift cars among themselves in order to try and even out peaks and troughs of car supply and demand. The most common joint arrangement used is sub-leasing. This generally involves a short-term leasing of cars by one shipper (lessee) to another shipper or to a railroad. Subleasing requires the approval of the leasing company (lessor) before such an arrangement can be made.

Another type of joint arrangement is the back-to-back or split lease between two or more shippers and the car leasing firm. Each shipper agrees to use the cars for a stated period of time during the year. The lease is made by the lessor with the shippers as co-lessees.

Over one-third of the cooperatives' leased cars were involved in sublease or back-to-back lease arrangements with other cooperatives or other firms during 1975, table 11. Eight out of 10 of the cooperatives' 2,874 cars involved in such joint arrangements were with firms other than cooperatives.

Hundreds of additional cars are involved in occasional or sporadic transfers among the cooperatives that are not included in the figures shown in table 11.

The big majority, almost three-fourths, of the cars involved in joint arrangements were covered hopper cars. Over one-third of the cars were back-to-back or subleased for periods of less than 4 months.

This large and increasing proportion of cooperatives' cars involved in short-term sublease and back-to-back lease arrangements is a manifestation of the problem cooperatives face in keeping their cars productively employed. The fact that they have turned to interfirm transfer of cars as a means of alleviating that problem strongly suggests the desirability and need for some type of pooling or coordinating program to facilitate matching car supply and needs among cooperatives.

Table 11—Railcars subleased or leased back-to-back¹ between cooperatives and with other firms,
18 cooperatives, 1975

Car type and lease period	Subleased to—			Subleased from—			Back-to-back with—			Total all types of lease
	Coop- era- tives	Other firms	Total	Coop- era- tives	Other firms	Total	Coop- era- tives	Other firms	Total	
<i>Number of cars</i>										
Covered hoppers:										
Less than 4 months	164	425	589	— — —	— — —	— — —	— — —	— — —	— — —	589
4 thru 6 months	— — —	700	700	— — —	237	237	374	180	554	1,491
Over 6 months	— — —	84	84	— — —	54	54	— — —	— — —	— — —	138
Tank cars:										
Less than 4 months	— — —	34	34	— — —	— — —	— — —	— — —	— — —	— — —	34
4 thru 6 months	— — —	10	10	— — —	186	186	10	416	426	622
Over 6 months	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —
Total	164	1,253	1,417	— — —	477	477	384	596	980	2,874

¹ The typical back-to-back lease involves the lessor leasing cars jointly to two or more lessees. Each lessee uses the cars for a stated period each year.

Backhaul Possibilities

We asked the 18 cooperatives if they had loaded backhauls on any of their railcar trips during 1975. Only five said they had loaded backhauls. Of these, two said backhauls amounted to less than 5 percent of total trips, one reported less than 1 percent, and two didn't indicate the percentage.

When asked why they did not have backhauls on all trips, the 18 cooperatives gave the following reasons.

<i>Reason</i>	<i>Times reported</i>
Backhauls not available	9
Delays car turnaround time	6
Other	4

The largest number of reasons for not having backhauls was "backhauls not available." Two of the cooperatives said it was particularly difficult to get backhauls even if commodities are available because there are no unit-train rates available for the possible backhaul commodities.

The next most important reason given for not having backhauls was "delays car turnaround time." Cooperatives giving this reason said that, because of car shortages, cars must be returned to their origins as rapidly as possible to provide the service for which

they were obtained. Therefore, they can't afford the added time that would be required to switch cars to other shippers' facilities for backhauls.

"Other" reasons included "difficulty in coordinating arrival time of cars with originating time needs of possible backhaul shippers" and "most backhaul possibilities would involve a triangular movement with resultant delays."

Railroad Service

When asked if any railroads had refused to pull their cars during the year, 5 of the cooperatives answered "yes," 3 gave a "qualified no," and 10 answered "no."

None of the cooperatives had any problems with railroads refusing to pull their tank cars. The principal reason given by the railroads to the cooperatives for not pulling their covered hopper cars was that the railroad had a surplus of their own covered hoppers which should be given priority.

The "qualified no" answers included "reluctance by railroad to pull shipper cars if a two-line haul is involved," "some railroads have threatened embargoing shipper cars but have not carried out the threat," and "railroad reluctance about placing shipper cars for loading."

IMPROVING CAR UTILIZATION

As stated earlier in this report, objectives of this study were: (1) To obtain a profile of present private railcar operations of farmer cooperatives; and (2) to explore possibilities and methods for improving railcar utilization and reducing costs through coordination or pooling. In preceding sections of the report we have presented the profile of present railcar operations of the 18 cooperatives studied. Based on this we will now explore the possibilities and methods for improving railcar utilization.

Coordinated Pool Car Program

A premise of this study was that to obtain better utilization of their railcars, cooperatives should consider coordination and pooling as a means of keeping their cars productively employed. If cooperatives determined that a coordinated pool car program was the route to follow to improve car utilization, then the kind of organizational structure to implement such a program should be considered.

We asked the cooperatives to choose between three suggested organizational structures for coordinating and pooling their railcars. If none of the three structures would meet their needs we asked them to list others.

As shown in table 12, 12 of the 18 cooperatives favored an organizational structure that would permit each cooperative to retain a core fleet and place surplus cars in a separate cooperative that would pool, manage, and coordinate the surplus fleets of participating cooperatives. Four cooperatives chose, as an organizational structure, a clearing house where cooperatives could report railcar needs or surpluses. All railcars would remain in possession and control of each participating cooperative. Two cooperatives chose a structure that would require all railcars to be assigned to a separate cooperative that would pool, manage, and coordinate the car fleets of participating cooperatives. None of the cooperatives suggested any alternative structure.

Table 12—Favored organizational structures for coordinating and pool railcars reported by
18 cooperatives, 1975

Organizational structure	Cooperatives responding
A separate cooperative to pool, manage and coordinate <i>a portion</i> of each participating cooperative's railcar fleet, with a core fleet to be retained by each cooperative	12
A clearinghouse where cooperatives could report railcar needs or surpluses. All railcars remain in possession and control of each participating cooperative	4
A separate cooperative to pool, manage and coordinate <i>all</i> railcars of participating cooperative.	2
Total	18

Advantages in Coordinating or Pooling Cars

Answers to the question, "What would be the advantages for cooperatives in coordinating or pooling their railcars?" are summarized in table 13.

The cooperatives reported that "possible better utilization of cars" was the major advantage in coordinating or pooling their railcars. This was followed by "car supply available when needed." The final major advantage reported was "possibilities for reducing costs."

Other advantages mentioned were "possibilities for smaller cooperatives to participate," "could keep usage in cooperative family," "helpful if it led to a cooperative leasing firm," and "may be better able to meet mileage equalization proposals."

Table 13—Advantages for cooperatives in coordinating or pooling their railcars, 18 cooperatives, 1975

Advantages	Times reported
Possible better utilization of cars	14
Car supply available when needed	8
Possibilities for reducing costs	4
Other	4

Disadvantages in Coordinating or Pooling Cars

The disadvantage in coordinating or pooling railcars mentioned most often by the cooperatives was "difficult to administer and implement" (table 14). This was followed by "overlapping of need among cooperatives" and "time lost moving cars between cooperatives."

"Difficulties with OT-5 agreements"³ was mentioned by three of the cooperatives.

³Circular OT-5D, issued by the Association of American Railroads, provides, among other things, means for individual railroads to enter into mileage payment agreements with private railcar operators regarding origin points the railroad will pull cars from.

Table 14—Disadvantages for cooperatives in coordinating or pooling their railcars, 18 cooperatives, 1975

Disadvantages	Times reported
Difficult to administer and implement	7
Overlapping of need among cooperatives	4
Time lost moving cars between cooperatives	4
Difficulties with OT-5 agreements ¹	3
No disadvantages	3
Other	5

¹ Refers to Circular No. OT-5D, issued by the Association of American Railroads which, among other things, provides means for individual railroads to enter into mileage payment agreements with private railcar operators regarding origin points the railroad will pull private cars from.

Three of the cooperatives believed there would be no disadvantages for a coordinated or pool car program.

Other disadvantages mentioned included, “not being able to get cars back when needed,” “each cooperative wanting to keep cars and not release them,” “shipments might not be compatible,” and “difficult to keep the extra car liability insurance cooperatives now take out.”

Would Cooperatives Pool Their Cars?

Given the opportunity to choose the type of organizational structure for coordinating or pooling their cars and to consider the advantages and disadvantages, the cooperatives were then asked if they would participate in a coordinated pool car program. All 18 of the cooperatives said, “yes.” A few of the respondents modified their response by indicating such an action would, of course, be subject to approval by the cooperative’s top management.

When asked to explain their response, half of the respondents made comments generally supporting the organizational structure they favored. They also indicated that if an organizational structure other than the one they favored were chosen then further consideration would have to be given to whether they would participate or not.

CONCLUSION

While this study was explorative in nature we believe sufficient information was developed to support the premise that cooperatives should consider pooling their railcars as a means of improving utilization.

We base this conclusion primarily on the following information developed by the study:

—The large and increasing number of railcars owned or leased by the 18 cooperatives studied—8,768 cars.

—The huge operating deficit of \$8.8 million the 18 cooperatives experienced on car operations in 1975.

—The increasing need of smaller, local cooperatives for their own railcars, generally for short periods of time, which could be more readily met by a car pool.

—The large number of railcars subleased and back-to-back or split leased between

cooperatives and between cooperatives and other firms as a recognized means of helping to keep cars productively employed.

—The expressed opinion by the 18 cooperatives studied that some type of car pooling or coordinating program is needed to obtain better utilization of their railcars.

A coordinating program to pool railcars would also present the following opportunities for cooperatives to improve car utilization and efficiency:

—Possibilities for developing backhauls or two-way movements of commodities that could result in reduced freight rates and improved energy use. For example, hopper cars could be loaded with grain from the Midwest to the Gulf and on the return they could be loaded with phosphate fertilizers from Florida. It is difficult or, in many cases, impossible for an individual cooperative to arrange such two-way movements. A coordinated pool car program would offer more possibilities for such arrangements.

—Excess car mileage earnings could be retained by car pool members. At present, if a particular leased car or cars earn railroad mileage payments in excess of car lease costs the excess is retained by the car leasing companies. If cars were pooled, the excess mileage earnings could be shifted to railcars that are operating at a deficit.

—More advantageous lease rates and conditions might be negotiated with car leasing companies because of the increased bargaining strength of a larger car fleet operation. Also, car leasing companies would probably reflect back the lower costs possible for administering a single large account, compared with the present smaller individual accounts.

OTHER PUBLICATIONS AVAILABLE

Trucking: Lease or Buy? Eldon E. Brooks and James R. Jacks. FCS Research Report 42. 1977.

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Safety-Checking Handling Practices to Reduce Livestock Losses. Joseph E. Rickenbacker. FCS Information 45. 1964. 18 pp.

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